

REVISION OF THE NEW ZEALAND TROCHIDÆ.

By HENRY SUTER.

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Fam. TROCHIDÆ.

Subfam. TROCHINÆ.

Genus. TROCHUS, Linné, 1758.

Subgen. INFUNDIBULUM, Montfort, 1810.

Sect. CÆLOTROCHUS, Fischer, 1880.

1. TROCHUS TIARATUS, Quoy & Gaimard.

Trochus tiaratus, Quoy & Gaim.: Voy. Astrolabe, Zool. vol. iii (1834), p. 256, pl. lxiv, figs. 6-11; Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 358; Pilsbry, Man. Conch., ser. I, vol. xi, p. 42, pl. xii, figs. 72-4; pl. I, fig. 4 (radula).

Anthora tiarata (Quoy & Gaim.): Hutton, Man. New Zealand Moll., p. 94; Hutton, Trans. New Zealand Inst., vol. xiv, p. 165, pl. vii, fig. N (radula).

Trochus delicatulus, Philippi: Zeitsch. Malak., 1846, p. 105.

Polydonta elegans, Gray: Yates' "New Zealand," 1835, p. 309.

Five to five and a half whorls; 5-8 spiral liræ of oblique beads on the penultimate whorl. Columella with an obsolete fold above. Umbilical area smooth. Alt. 10, diam. 13.5 mm.

Hab.—On rocks near low-water mark from Auckland to Dunedin; common in the North, rare in the South Island.

2. TROCHUS CHATHAMENSIS (Hutton).

Polydonta Chathamensis, Hutton: Cat. Mar. Moll. New Zealand, 1873, p. 36.

Anthora Chathamensis, Hutton: Man. New Zealand Moll., 1880, p. 94.

Trochus Chathamensis, Hutton: Proc. Linn. Soc. New South Wales, vol. ix, p. 359; Pilsbry, Man. Conch., ser. I, vol. xi, p. 43.



Trochus Chathamensis (Hutton).

Six whorls, with 5-6 close, low, spiral cinguli between the upper and lower margins, which are strongly elevated. Upper edge of whorls nodulous, lower edge spirally striate and as a rule more prominent than the upper one. Longitudinal oblique markings of brownish-purple on

a white ground. Columella with almost imperceptible fold above. False umbilicus almost filled up, smooth. Alt. 7·5, diam. 9 mm.

Hab.—Chatham Is. only.

The specimens reported by Mr. T. W. Kirk as having been found near Wellington very likely do not belong to this species, but to *T. oppressus*, Hutton.

3. TROCHUS OPPRESSUS (Hutton).

Gibbula oppressa, Hutton: Journ. de Conch., 1878, p. 34; Man. New Zealand Moll., 1889, p. 102; Proc. Linn. Soc. New South Wales, vol. ix, p. 364; Trans. New Zealand Inst., vol. xv, p. 124, pl. xiv, fig. M (radula); Pilsbry, Man. Conch., ser. 1, vol. xi, p. 232, pl. xl, figs. 4, 5.

Dark olive-brown, tessellated with darker markings. Beach specimens, having lost the periostracum, are white with fuscous markings. Whorls keeled above the middle. Body-whorl biangular. Entire surface closely, finely, spirally striate. Columella oblique, straight, inserted in centre of base. Alt. 5·5, diam. 6 mm.

The presence of a false umbilicus, quite exceptional in *Gibbula*, led me to re-examine the radula. I found the teeth to correspond with Hutton's description and figure, but the point of great importance is the absence of a jaw. It therefore cannot belong to the genus *Gibbula*, and its proper place is no doubt under *Trochus*.

Hab.—Under stones near low-water mark, scarce, Auckland, Lyall Bay.

Var. *Dunedinensis*, n.var.

Differs from the type in being larger and in the body-whorl being only faintly angular; the colour is rather darker, but the markings are the same. Whorls $5\frac{1}{2}$, protoconch minute, distantly spirally striated. Spire-whorls not keeled in the middle or above it, but slightly convex, nodulous below the suture, with a well-developed cingulus above the nodules; 6-7 cinguli on the penultimate whorl. On the last whorl and the base the cinguli are crossed by very fine and dense lines of growth. In some specimens the cinguli of the base, 8-9, are coarser near the axis, in others they are of nearly equal size. Radula the same as in the type; no jaw. Alt. 7·5, diam. 7·5 mm.

Hab.—Dunedin Harbour, under stones; only a few specimens (H. S.).

Sect. ANTHORA, Gray, 1857.

4. TROCHUS VIRIDIS, Gmelin.

Trochus viridis, Gmel.: Syst. Nat., 13th ed. (1788), p. 3572, No. 34; Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 358; Pilsbry, Man. Conch., ser. 1, vol. xi, p. 43, pl. iii, figs. 16, 17, and vol. x, pl. xl, fig. 21.

Anthora viridis (Gmel.): Hutton, Man. New Zealand Moll., p. 94.

Polydonta tuberculata, Gray: Dieffenbach's "New Zealand," vol. ii, p. 239.

Anthora tuberculata (Gray): Hutton, Trans. New Zealand Inst., vol. xv, p. 124, pl. xiv, fig. K (radula); Hutton, Man. New Zealand Moll., p. 93.

- Trochus acinosus*, Gould: U.S. Explor. Exped., Moll. p. 179, fig. 217.
Trochus fulvolabris, Hombr. & Jacq.: Voy. Pole Sud, Zool. vol. v,
 p. 56, pl. xiv, figs. 14-16.
Polydonta tritonis, A. Adams: Proc. Zool. Soc., 1854, p. 132.
Anthora tritonis (A. Ad.): Hutton, Man. New Zealand Moll., p. 94.

Seven whorls; five series of granulated spiral liræ on penultimate whorl. Columella with a deep fold above. Umbilical area with 3-4 spiral ribs. Alt. 20, diam. 19 mm.

Hab.—On rocky ground near low-water mark from Whangarei to Dunedin. Rather rare in the North, but attaining a larger size.

Subgen. CLANCULUS, Montfort, 1810.

5. TROCHUS RINGENS (Menke).

- Monodonta ringens*, Menke: Moll. Nov. Holl. Spec., 1843, p. 14,
 No. 53 (not *M. ringens*, Philippi, 1846).
Trochus ringens (Menke): Philippi, Conch. Cab., p. 235, pl. xxxvi,
 fig. 1; Fischer, Coq. Viv., p. 213, pl. lxxi, fig. 1; Pilsbry,
 Man. Conch., ser. I, vol. xi, p. 81, pl. xi, figs. 49, 50.

Shell perforate, conical; whorls 7, the first smooth, yellowish, following planulate, separated by canaliculate sutures, maculate with chestnut and white, spirally cingulate above with four elegantly granulate ridges, the upper and lower larger, last whorl acutely carinated; base slightly convex, ornamented with 8-9 granose cinguli; aperture rhomboidal, oblique, narrow; basal margin sulcate-denticulate; columella strong, oblique, terminating below in a large tooth, ringent above; columella callous, ringent, plicate. Alt. 10, diam. 11 mm. (Fischer). Sometimes the altitude exceeds the diameter.

My specimen from Mokohinau Island, which agrees in every respect with Fischer's excellent description, measures 12 × 10.5 mm.

Hab.—Cape Maria van Diemen (C. H. Robson); Mokohinau I. (caretaker of the lighthouse).

This is a new addition to the fauna of New Zealand. In Hutton's Man. New Zealand Moll. *Clanculus variegatus*, Adams, is mentioned, loc. Auckland (?), but in his revision (1884) it is omitted from the list of New Zealand mollusca. Whether *Trochus ringens* was erroneously taken for *T. variegatus* or not, I do not know.

Genus MONODONTA, Lamarek, 1801.

Subgen. DILOMA, Philippi, 1845.

Sect. NEODILOMA, Fischer, 1885.

6. MONODONTA ÆTHIOPS (Gmelin).

- Trochus Æthiops*, Gmelin: Syst. Nat., 13th ed., p. 3596, No. 32.
Trochus Zealandicus, Quoy & Gaim.: Voy. Astrolabe, Zool. vol. iii,
 p. 257, pl. lxiv, figs. 12-15.

Monodonta reticularis, Gray: Dieffenbach's "New Zealand," vol. ii, p. 238.

? *Labio concolor*, A. Adams: Proc. Zool. Soc., 1851, p. 180.

Diloma Æthiops (Gmel.): Hutton, Man. New Zealand Moll., p. 95; Hutton, Trans. New Zealand Inst., vol. xv, p. 125, pl. xv, fig. A (radula).

Monodonta Æthiops (Gmel.): Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 365; Pilsbry, Man. Conch., ser. i, vol. xi, p. 98, pl. xix, figs. 99-100; pl. xx, fig. 19; pl. l. fig. 12 (radula).

With distant narrow spiral black grooves, the intervening tracts flat, black, articulated with white. Outer lip black-edged. Umbilical tract very broad, bounded on the outer, lower margin by a chocolate streak. Alt. 25-33, diam. 25-30 mm.

Hab.—On rocks near high-water mark; common throughout New Zealand, Chatham Is., Auckland Is.

7. MONODONTA MORIO (Troschel).

Trochus morio, Troschel in Philippi: Conch. Cab., p. 142, pl. xxiv, fig. 3.

Monodonta melaloma var. *guttata*, Hutton: Proc. Linn. Soc. New South Wales, vol. ix, p. 367.

Monodonta morio, Trosch.: Pilsbry, Man. Conch., ser. i, vol. xi, pp. 102, 105, pl. xxxv, figs. 26, 27.

Shell black, surface rough, apex almost always eroded, with irregularly scattered white dots, obsolete spirally sulcate, 9-10 on the penultimate whorl. Umbilical tract broad, with a tongue-shaped pearly umbilical impression, bounded by dark-green. Outer lip edged with blackish-green, followed by a narrow silvery, lirate band, and inside this a broad band of opaque white, the prolongation of the columella lip, follows. Very variable in form. Alt. 12-20, diam. 14-19 mm.

Hab.—On rocks and under stones near low-water mark, from Auckland to Banks' Peninsula.

8. MONODONTA ATROVIRENS (Philippi).

Trochus atrovirens, Philippi: Conch. Cab., p. 148, pl. xxiv, fig. 12; Fischer, Coq. Viv., p. 373, pl. cxiv, fig. 1.

Monodonta atrovirens, Phil.: Pilsbry, Man. Conch., ser. i, vol. xi, p. 110, pl. xxii, figs. 48-50.

Shell orbiculate, conoidal, shining, greenish-black, usually faintly marked with yellowish spots, spirally sulcate, sulci 7-9 on the penultimate whorl. Sutures submargined below. Last whorl much dilated, rounded at the periphery. Outer lip edged with green or blackish-green. Columellar callus broadly expanded, bounded by green or blackish-green, a distinct tongue-shaped pit at the place of the umbilicus. Alt. 9-17, diam. 14-23 mm.

Hab.—Tasman's Bay; Lyall Bay; Dunedin. Under stones above low-water mark.

Found mostly with the preceding species, from which it is not always easily separated.

9. *MONODONTA PORCIFERA* (Watson).

? *Labio porcifera*, A. Adams: Proc. Zool. Soc., 1851, p. 179.

Trochus (*Diloma*) *porcifer* (A. Ad.): Watson, Rept. Challenger Exped., Gastropoda, p. 67, pl. iv, fig. 12.

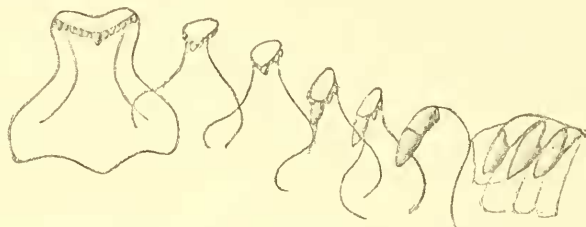
Diloma nigerrima, Chemn.: Hutton, Man. New Zealand Moll., p. 96; ? Hutton, Trans. New Zealand Inst., vol. xv, p. 125, pl. xv, fig B (radula).

Monodonta nigerrima (Chemn.): Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 366 [not *nigerrima* (Gmel.), Philippi].

Monodonta porcifera, Watson: Pilsbry, Man. Conch., ser. 1, vol. xi, p. 102, pl. xxii, figs. 53, 54.

Shell depressed, globose, bluish-black, polished, superficially lirate, sometimes sparsely dotted with white. Suture margined below. Outer lip margined with black. Columella not dentate, broad, sub-concave. Opaque substance of columella extending upon the base of the aperture, forming a strong ledge within. Alt. 10-13, diam. 13.5-16.5 mm.

My specimens do not show a trace of white spots, but otherwise agree with Watson's description. *Monodonta coracina* also occurs, with and without yellow spots.



Portion of radula of *Monodonta porcifera* (Watson).

The figures of the teeth of the radula of *Diloma nigerrima* published by Captain Hutton, and quoted above, are very likely those of another species (*Monodonta coracina*?). I therefore give here the figures of the teeth of specimens which I consider to be typical, collected at St. Clair, near Dunedin.

Hab.—The only specimens I have seen and collected on rocks are those from St. Clair, Dunedin. Captain Hutton quotes the following localities: Banks' Peninsula to Dunedin, Chatham Is., Auckland Is.

10. *MONODONTA CORACINA* (Trosch.).

Trochus coracinus, Troschel in Philippi: Conch. Cab., p. 148, t. xxiv, fig. 13.

Monodonta coracina (Troschel): Pilsbry, Man. Conch., ser. 1, vol. xi, p. 103, pl. xix, fig. 94; pl. xxxi, fig. 28.

Shell orbicular-conoid, depressed, lustreless, purplish-black, with or without yellow spots. Suture more or less distinctly margined below. Spiral liræ of whorls distinct or almost obsolete. Last whorl angulate around the periphery; body-whorl sometimes biangulate. Outer lip black-edged, followed by a narrow opaque white band, which runs as



Portion of radula of *Monodonta coracina* (Trosch.).

a silvery stripe over the umbilical tract parallel to the columella, and unites again with the upper lip, thus forming a complete circle. Umbilical tract bounded on the outer, lower margin by green, grey, or brown. Alt. 10–13, diam. 11–18 mm. A large conic specimen from Lyttelton measures 17 × 17 mm.

Hab.—Wellington and Lyttelton Harbours, Sumner (H. S.). Under stones on sandy beaches above low-water mark.

11. *MONODONTA EXCAVATA* (Adams & Angas).

Trochocochlea excavata, Ad. & Ang.: Proc. Zool. Soc., 1864, p. 37; Hutton, Man. New Zealand Moll., p. 97.

Diloma excavata (Adams): Hutton, Trans. New Zealand Inst., vol. xv, p. 126, pl. xv, fig. F (radula).

Monodonta excavata (Ad. & Ang.): Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 368; Pilsbry, Man. Conch., ser. i, vol. xi, p. 109, pl. xxxv, figs. 1–3.

Trochocochlea constricta (Lamk.): Hutton, Journ. de Conch., 1878, p. 33. [Not of Lamarck.]

Shell small, depressed-conic, greyish-green, minutely maculated with dark-olive, apex but seldom eroded. Last whorl convex above, flattened beneath, and carinate at the periphery. Liræ distinct only on the base. Outer lip edged with black. Umbilical tract broad, concave, bounded by light-brown. Alt. 5, diam. 6 mm. Specimens from Greymouth measure 10 × 11½ mm.

Hab.—West coast of New Zealand; Manukau Heads; Cape Egmont; Greymouth.

12. *MONODONTA LUGUBRIS* (Gmelin).

Trochus lugubris, Gmelin; Syst. Nat., 13th ed., p. 3583, No. 104.

Trochus cingulatus, Quoy & Gaim.: Voy. Astrolabe, Zool. vol. iii, p. 259, pl. lxiv, figs. 16–20 (not *cingulatus*, Brocchi nor Menke).

- Monodonta angulatum* [misprint for *cingulatum*] (Quoy & Gaim.): Gray in Dieffenbach's "New Zealand," vol. ii, p. 238.
- Trochus Gaimardi*, Philippi: Conch. Cab., p. 211, pl. xxxi, figs. 7-9.
- Diloma Gaimardi* (Phil.): Hutton, Man. New Zealand Moll., 1880, pp. 96, 201.
- Trochus Bernardii*, Recluz: Journ. de Conch., 1852, p. 166, pl. vii, fig. 5.
- Trochus sulcatus*, Wood: Index Test. Suppt., pl. vi, fig. 40.
- Monodonta sulcata* (Wood): Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 367 (not *sulcatus*, Martyn nor Lamarek).
- Trochus bicanaliculatus*, Dunker in Philippi: Conch. Cab., p. 202, pl. xxx, fig. 6.
- Monodonta lugubris*, Gmel.: Pilsbry, Man. Conch., ser. i, vol. xi, p. 100, pl. xix, fig. 93; pl. xxxv, figs. 24, 25.

Whorls strongly, spirally ridged, carinate, black, the ridges nodulous and dotted with white or yellow; three on the penultimate whorl, interstices spirally striate. Outer lip black-edged, then nacreous and lined with opaque white. Umbilical tract not very broad, bordered on the outer margin by greyish-white. Alt. 9-13, diam. 13-15 mm.

Hab.—From Auckland to Dunedin, under stones near low-water mark. Not common, but more abundant in Cook Strait than further north or south.

13. MONODONTA SUBROSTRATA, Gray.

- Monodonta subrostrata*, Gray: Yate's "New Zealand," 1835, p. 308; Dieffenbach's "New Zealand," vol. ii, p. 238.
- Trochocochlea subrostrata* (Gray): Hutton, Man. New Zealand Moll., 1880, p. 96.
- Diloma* (?) *subrostrata* (Gray): Hutton, Trans. New Zealand Inst., vol. xv, p. 126, pl. xv, fig. G (dentition).
- Monodonta subrostrata* (Gray): Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 367; Pilsbry, Man. Conch., ser. i, vol. xi, p. 101, pl. xix, figs. 89, 90.

Shell with subnodulose, spiral ribs, which are wider apart on the upper surface and closer on the base. Yellowish with undulating, longitudinal, purple lines. Outer lip edged with yellow and dotted with black, then a narrower band of opaque white; throat lirate, silvery. Umbilical tract rather broad, greyish or yellowish-grey on its outer lower margin. Alt. 11-14, diam. 13-15 mm.

Hab.—Auckland to Tauranga, abundant on *Zostera* beds.

14. MONODONTA MELANOLOMA, Menke.

- Monodonta melanoloma*, Menke: Moll. Nov. Holl., 1843, p. 14.
- Trochus melanoloma* (Menke): Philippi, Conch. Cab., p. 146, pl. xxiv, fig. 9.
- Labio corrosa*, A. Adams: Proc. Zool. Soc., 1851, p. 180; Hutton, Man. New Zealand Moll., p. 96.

Diloma corrosa (Adams): Hutton, Trans. New Zealand Inst., vol. xv, p. 126, pl. xv, fig. D (radula).

Labio Hectori, Hutton: Cat. Mar. Moll. New Zealand, 1873, p. 37.

Trochocochlea chloropoda, Tate: Zool. and Pal. Misc., p. 10 (*teste* Hutton).

Monodonta melaloma (Menke): Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 366.

Monodonta melanoloma, Menke: Pilsbry, Man. Conch., ser. I, vol. xi, p. 104, pl. xxii, figs. 56, 57.

Shell globose, conical, roughened and eroded, purplish, body-whorl mostly yellowish; more or less distinctly lirate. Outer lip yellow-edged, followed by a black band. Columella arcuate, with a small tooth below the middle. Umbilical tract narrow, concave, bounded by dark-grey. Alt. 15, diam. 16 mm.

Hab.—On mud-flats of estuaries in brackish water, Heathcote Estuary, near Christchurch (H. S.).

Var. *undulosa*, A. Adams.

Chlorostoma undulosum, A. Adams: Proc. Zool. Soc., 1851, p. 182.

For synonymy, see Pilsbry, Man. Conch., ser. I, vol. xi, p. 105, pl. xxii, figs. 45-7.

Larger than the type, and the spiral striation more distinct; yellowish, with undulating lines of dark-purple. Alt. 18, diam. 20 mm.; alt. 17, diam. 22 mm.

Hab.—Sumner to Dunedin. On rocks: not common.

Var. *plumbea*, Hutton.

Diloma plumbea, Hutton: Trans. New Zealand Inst., vol. xv (1883), p. 126, pl. xv, fig. E (radula).

Monodonta melaloma var. *plumbea*: Proc. Linn. Soc. New South Wales, vol. ix, p. 367; Pilsbry, Man. Conch., ser. I, vol. xi, p. 105, pl. xxii, figs. 45-7.

Shell dull-purplish, spire mostly eroded, roughened, last whorl obsoletely lirate. Outer lip edged with black. Columella and umbilical tract as in the type, the latter sometimes of a greyish-green colour. Alt. 14.5-16, diam. 16-17 mm.

Hab.—Sumner, Lyttelton, Banks' Peninsula to Dunedin. Under stones near low-water mark; rather scarce.

Sect. CHLORODILOMA, Pilsbry, 1889.

15. MONODONTA CRINITA (Philippi).

Trochus crinitus, Philippi: Zeitschr. Malak., 1848, p. 103.

Trochocochlea mimetica, Hutton: Journ. de Conch., 1878, p. 32; Man. New Zealand Moll., p. 96.

Monodonta mimetica, Hutton: Proc. Linn. Soc. New South Wales, vol. ix, p. 368.

Monodonta crinita, Phil.: Pilsbry, Man. Conch., ser. I, vol. xi, p. 111, pl. xxii, figs. 41-4.

Shell globose-conic, narrowly perforate, cinereous, spirally grooved, cinguli dark-purple with white spots at regular distance. Columella not very thick, obtusely dentate below, white-edged. Umbilico-columellar area bright-green with undulating narrow bands of purplish-brown. Alt. 17, diam. 16-18 mm.

The only specimen I have, measures 9×12 mm., having 3.5 whorls only; the apex is not eroded, protoconch smooth, dark-orange.

Pilsbry states that it is sometimes imperforate.

Hab.—Auckland, on *Zostera* beds; scarce (T. F. Cheeseman).

Genus CANTHARIDUS, Montfort, 1810.

Subgen. CANTHARIDUS, Montf.

Sect. CANTHARIDUS, s.s.

16. CANTHARIDUS IRIS (Gmelin).

Trochus iris, Gmelin: Syst. Nat., 13th ed., p. 3580, No. 86.

Cantharidus iris (Gmel.): Hutton, Man. New Zealand Moll., p. 99;
Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 361.

Cantharidus Zealandicus, A. Adams: Proc. Zool. Soc., 1851, p. 169.

Cantharidus Zealandicus, A. Ad.: Hutton, Man. New Zealand Moll.,
p. 99.

Cantharidus iris (Gmel.): Pilsbry, Man. Conch., ser. 1, vol. xi, p. 122,
pl. xxxiv, fig. 15.

Shell elevated, conical, obtusely angular at the periphery, whitish with longitudinally undulating purplish-red streaks; obsolete lyrate, about five separated narrow ridges on the base. The largest species of the genus. Alt. 40, diam. 30 mm.

I follow Hutton in placing Adams' *Cantharidus Zealandicus* as a synonym of this species, Pilsbry taking it as a synonym of *C. pruininus* (Gould), which I do not think to be correct.

Hab.—Auckland to Cook Strait; Chatham Is.

17. CANTHARIDUS PRUININUS (Gould).

Trochus pruininus, Gould: Proc. Boston Soc. Nat. Hist., vol. iii (1849),
p. 90; U.S. Explor. Exped., Moll. p. 180, fig. 205; Otia,
p. 55.

Trochus capillaceus, Philippi: Zeitschr. f. Malak., 1848, p. 102.

Trochus episcopus, Hombr. & Jacq.: Voy. Pole Sud, Zool. vol. v, p. 55,
pl. xiv, figs. 9-11.

Cantharidus episcopus (Hombr. & Jacq.): Hutton, Man. New Zealand
Moll., p. 100.

Cantharidus pruininus (Gould): Hutton, Proc. Linn. Soc. New South
Wales, vol. ix, p. 361.

Cantharidus pruininus (Gould): Pilsbry, Man. Conch., ser. 1, vol. xi,
p. 122, pl. xlvi, figs. 60, 61.

Shell ovate-conical, deep purple, apex pink; surface nearly smooth, densely, finely, spirally striate all over. Last whorl rounded, or obtusely angular. Aperture less than one-half the length of the shell, iridescent within with finer dense folds. Columella subvertical, expanded in a callous pad over the umbilicus. Relative length of spire very variable. Alt. 22, diam. 16 mm.; alt. 19, diam. 16 mm.; alt. 30, diam. 19 mm.

Hab.—Auckland Is.; Campbell Is.

Var. *perobtusa*, Pilsbry.

Man. Conch, ser. I, vol. xi (1889), p. 123, pl. xxxiv, fig. 1.

Spire short, very obtuse at the apex, whorls 5, the last large, descending anteriorly. Aperture as long as the spire; other characters as in *C. pruinus*—(Pilsbry). Alt. 20, diam. 19 mm.

Hab.—Auckland Is.; Campbell Is.; Macquarie Is.

Mr. A. Hamilton, of Dunedin, collected specimens on the latter island; some are dark-purple, others cinereous.

18. *CANTHARIDUS TENEBROSUS*, A. ADAMS.

Cantharidus tenebrosus, A. Ad.: Proc. Zool. Soc., 1851, p. 170.

Cantharidus tenebrosus, A. Ad.: Hutton, Man. New Zealand Moll., p. 101; Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 361; (?) Hutton, Trans. New Zealand Inst., vol. xiv, p. 166, pl. vii, fig. L (radula); Pilsbry, Man. Conch., ser. I, vol. xi, p. 123, pl. xxxiv, fig. 3.

Shell conical, elevated, bluish-black or cinereous, 6–7 spiral liræ on the penultimate whorl, 13–16 on the body-whorl, the latter bluntly subangular at the periphery. Columella covering the umbilicus. Alt. 11.5, diam. 9.5 mm.

Hab.—Throughout New Zealand. On seaweeds.

Var. *Huttonii*, E. A. Smith.

Trochus (*Cantharidus*) *Huttonii*, E. A. Smith: Journ. Linn. Soc., (Zool.) vol. xii (1876), p. 558, pl. xxx, fig. 20; Hutton, Man. New Zealand Moll., p. 100.

Cantharidus tenebrosus var. *Huttoni*: Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 362; Hutton, Trans. New Zealand Inst., vol. xiv, p. 165, pl. vii, fig. M (radula); Pilsbry, Man. Conch., ser. I, vol. xi, p. 123, pl. xxxiv, fig. 2.

Gibbula plumbæ, Hutton: Journ. de Conch., 1878, p. 33.

Shell short, conical, bluish-black, 8–11 spiral liræ on the penultimate-, 17–20 on the body-whorl. Columella covering the umbilicus. Alt. 9, diam. 7 mm.; alt. 14.5, diam. 10.5 mm.; alt. 15, diam. 13 mm. (specimen from Dunedin).

Hab.—The same as the type, but more plentiful.

19. CANTHARIDUS PURPURATUS (Martyn).

Limax purpuratus, Martyn: Univ. Conch., pl. lxxviii (1784).

Cantharidus purpuratus (Martyn): Hutton, Man. New Zealand Moll., p. 99; Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 361; Hutton, Trans. New Zealand Inst., vol. xv, p. 124, pl. xiv, fig. O (radula); Pilsbry, Man. Conch., ser. I, vol. xi, p. 124, pl. xlv, fig. 44.

Trochus rostratus, Gmelin: Syst. Nat., 13th ed., p. 3580.

Trochus elegans, Gmelin, t.e., p. 3581.

Phasianella rubella, Menke: Syn. Meth. Moll., p. 51 (*teste* Hutton).

Trochus pallidus, Hombr. & Jacq.: Voy. Pole Sud, Zool. vol. v, p. 55, pl. xiv, figs. 12, 13 (not *pallidus*, Forbes).

Cantharidus pallidus (Hombr. & Jacq.): Hutton, Man. New Zealand Moll., p. 100.

Trochus rostratus, Kiener: Spec. et Icon., pl. xlvi, fig. 1.

Trochus torosus (Quoy MS): Kiener, op. cit., pl. xlvi, fig. 3.

Cantharidus purpuratus (Martyn): Pilsbry, Man. Conch., ser. I, vol. xi, p. 125, pl. xlv, fig. 45.

Shell imperforate, acutely conical, first whorls reddish or reddish-green, the remainder whitish, sometimes ornamented with rosy oblique streaks; spirally cingulate, cinguli flat, five on the penultimate whorl, the narrow interstices lamellose-striate. Last whorl subangular, convex beneath. Aperture subtrapezoidal, lirate and highly iridescent within. Columella nearly vertical. Alt. 22, diam. 16 mm.; alt. 32, diam. 19 mm.; alt. 24, diam. 20 mm.

Hab.—Auckland to Banks' Peninsula; on rocks, but more often on floating seaweeds.

Var. *texturata*, Gould.

Trochus texturatus, Gould: Proc. Bost. Soc. Nat. Hist., vol. iii (1849), p. 90.

Cantharidus texturatus (Gould): Hutton, Man. New Zealand Moll., p. 99; Trans. New Zealand Inst., vol. xiv, p. 165, pl. vii, fig. I (radula); Pilsbry, Man. Conch., ser. I, vol. xi, p. 125, pl. xlv, figs. 41-3.

The ribs with a secondary sculpture of fine spiral striæ, the whole surface covered by sharp incremental striæ.

Hab.—The same as the type.

20. CANTHARIDUS PUPILLUS, Hutton.

Cantharidus pupillus, Hutton: Proc. Linn. Soc. New South Wales, vol. ix (1884), p. 362 (not *Trochus pupillus*, Gould); Trans. New Zealand Inst., vol. xiv, p. 165, pl. vii, fig. K (radula); Pilsbry, Man. Conch., ser. I, vol. xi, p. 130.

According to Pilsbry, the *T. pupillus*, Gould, is undoubtedly a species from the west coast of North America, and belongs to the genus *Margarita*.

Shell conical, imperforate, shining, solid, of very variable colour and markings. Specimens from the North Island are cinereous or white, with broad red spots on the upper whorls and below the suture on the last whorl, the remainder being adorned with red spots; sometimes the whole shell is pink, with broad oblique white bands running down the two last whorls to the periphery. The South Island specimens are much duller, the first three or four whorls are mottled with dark-grey and purple, whilst near the sutures white spots are found at regular intervals, 6-7 on a whorl, forming longitudinal bands



Cantharidus pupillus, Hutton.

on the second and third whorl. The last whorls are dark-purple or greenish-brown, with longitudinal, narrow streaks of yellow or yellowish-grey. The whorls, 5-6, are slightly convex, mostly a little shouldered, the last whorl angled at the periphery; all the whorls are eingulate, the einguli being broad and flat, and the interstices narrow, 5-6 on the penultimate whorl, about 13 on the body-whorl, crossed by fine oblique striæ of growth. Below the sutures and on the periphery of the last whorl two einguli are usually fused together; base convex; sutures impressed. Aperture oblique, subrhomboidal; outer lip thick, white inside, columella oblique, arched, slightly straightened in the middle, its reflection covering the umbilicus entirely, or leaving only a very narrow fissure. Alt. 8, diam. 7 mm.

Hab.—Heads of Manukau Harbour; Lyttelton; Banks' Peninsula to Dunedin. On seaweeds; not common.

Captain Hutton rightly remarks that this is a very variable shell. The character and number of the einguli I found to be constant. North Island specimens especially are lovely shells; hardly two are alike in colour and pattern.

21. CANTHARIDUS SANGUINEUS (Gray).

Trochus (*Gibbium*) *sanguineus*, Gray: Dieffenbach's "New Zealand," vol. ii (1843), p. 238.

Gibbula sanguinea (Gray): Hutton, Man. New Zealand Moll., p. 102.

Cantharidus sanguineus (Gray): Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 362; Pilsbry, Man. Conch., ser. 1, vol. xi, p. 131, pl. xlvii, figs. 92, 93.

Shell conical, imperforate, spirally ribbed, ribs 5-6 on the penultimate- and 10-14 on the body-whorl; pinkish-white or light-grey with blood-red spots on the ribs, or with red flexuous longitudinal markings. Whorls 6, slightly convex, the last angled at the periphery, rather convex below. Suture distinct. Aperture oblique, outer lip thick,



Cantharidus sanguineus (Gray).

inside with a white opaque callosity; columella oblique, white, its expansion covering the umbilicus, leaving sometimes a small fissure. Alt. 9, diam. 7 mm.

Hab.—Auckland to Wellington; Chatham Is.

Like Captain Hutton, I have only seen dead specimens.

Var. *celata*, Hutton.

Proc. Linn. Soc. New South Wales, vol. ix, p. 363; Pilsbry, Man. Conch., ser. I, vol. xi, p. 131.

Shell smaller, more deeply ribbed and the ribs narrower; 5-7 on the penultimate-, 15-16 on the body-whorl; they are sometimes rendered obsoletely granular by the lines of growth that cross them obliquely. Columella with an obsolete tooth in the middle; umbilicus completely closed up. Alt. 5.5, diam. 4.5 mm.

Hab.—Foveaux Strait (dredged).

Var. *elongata*, n.var.

Differs from the type in being narrower, the whorls of spire obsoletely shouldered, the ribs more numerous and finer, 10-11 on the penultimate-, about 18-19 on the body-whorl. Colour white or light-grey, ribs light-brown or reddish-brown, dissolved in spots on the base only. Outer lip edged with white and brown dots, followed by a broad white opaque band; interior pearly. Aperture quadrangular, columella nearly vertical, with an obsolete tooth in the middle, the expansion covering the umbilicus. Alt. 7.5, diam. 5 mm.

Hab.—Lyall Bay (A. Hamilton).

22. *CANTHARIDUS DILATATUS* (Sowerby).

Elenchus dilatatus, Sowerby: Proc. Zool. Soc., 1870, p. 251; Hutton, Man. New Zealand Moll., p. 101.

Cantharidus dilatatus (Sby.): Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 363; Pilsbry, Man. Conch., ser. I, vol. xi, p. 148.

Chrysostoma simulata, Hutton: Cat. Mar. Moll., 1873, p. 36.

Gibbula simulata, Hutton: Man. New Zealand Moll., p. 102.

Cantharidus simulatus, Hutton: Proc. Linn. Soc. New South Wales, vol. ix, p. 363.

Shell conical, imperforate, shining, cinereous, pink or pinkish-brown, usually with white markings near the suture or tessellated with white, sometimes a broad dark-brown band encircling the middle of the whorls, and one on the centre of base; finely, spirally striated. Whorls 6, slightly convex, the last obtusely angled at the periphery



Cantharidus dilatatus (Sby.).

and considerably expanded. Aperture oblique, subrotund; outer lip strengthened by an inner, white callosity, interior highly bluish-green, iridescent. Columella regularly arched, broadly expanded, and completely covering the umbilicus. Base slightly convex. Alt. 9, diam. 8 mm.

Hab.—Hokianga; Auckland; Cook Strait; Chatham Is. On seaweeds near low-water mark; scarce.

By comparing specimens in the Canterbury Museum, I have satisfied myself as to the undoubted identity of *Elenchus dilatatus*, Sby., with *Cantharidus simulatus*, Hutton.

23. CANTHARIDUS RUFOZONA, A. Adams.

Cantharidus rufozona, A. Ad.: Proc. Zool. Soc., 1851, p. 170.

Cantharidus rufozona, A. Ad.: Hutton, Man. New Zealand Moll., p. 101; Pilsbry, Man. Conch., ser. I, vol. xi, p. 150.

Shell globosely conoidal, small, rather thin, imperforate, white or cinereous with distant rufous or pinkish-brown spiral ribs, 5 on the penultimate-, 13 on the body-whorl. Whorls 6, scarcely convex, the body-whorl rounded at the periphery. Suture impressed. Interstices between the ribs smooth. Aperture subquadrangular, outer lip slightly indented, sharp, articulated with pinkish-brown, with an inner opaque white band, interior iridescent. Columella vertical, white, slightly toothed in the middle; columellar expansion small, but perfectly filling up the umbilicus. Base convex. Alt. 6, diam. 5 mm.

Hab.—Near Auckland. The specimens in my collection were only lately collected and given to me by Mr. Charles Spencer, of Auckland. I have not seen this species before.

Pilsbry states, "Habitat unknown," but Captain Hutton (l.c.) states that he added the species to our list on the authority of Mr. E. A.

Smith, who says that specimens from New Zealand are in the British Museum, and kindly permits me to add that he agrees with my opinion, but considers the illustration here given to represent a young shell.



Cantharidus rufozona, A. Ad.

I can cordially endorse everything Mr. Pilsbry says about Adams' Monograph of the Trochidæ (t.e., p. 6).

Subgen. **BANKIVIA** (Beek), Krauss, 1848.

Sect. **BANKIVIA**, s.s.

24. **CANTHARIDUS FASCIATUS** (Menke).

- Phasianella fasciata*, Menke }
Phasianella fulminata, Menke } Syn. Meth. Moll., 1830, p. 141.
Phasianella undatella, Menke }
Bankivia varians (Beck): Krauss, Südafrik. Moll., p. 105, pl. vi, fig. 1 ;
 Hutton, Man. New Zealand Moll., p. 101 ; Proc. Linn. Soc.
 New South Wales, vol. ix, p. 365.
Bankivia purpurascens, A. Adams: Proc. Zool. Soc., 1851, p. 171.
Bankivia major, A. Adams: t.e., p. 171.
Bankivia nitida, A. Adams: t.e., p. 172.
Cantharidus fasciatus, Pilsbry: Man. Conch., ser. I, vol. xi, p. 139,
 pl. xl, figs. 28-33.

Shell turreted, thin, shining, white, creamy or pink, plain or banded with pink, purple or brown. Last whorl rounded. Aperture ovate, outer lip acute, columella sinuous, obliquely truncate below. Alt. 19, diam. 8 mm.

Hab.—Waikanae, Cook Strait.

Sect. **LEIOPYRGA**, H. & A. Adams, 1863.

25. **CANTHARIDUS PICTURATA** (H. & A. Adams).

- Leiopyrga picturata*, H. & A. Adams: Ann. & Mag. Nat. Hist., 1863,
 vol. xi, p. 19.
Cantharidus picturata, Pilsbry: Man. Conch., ser. I, vol. xi, p. 140,
 pl. xlv, figs. 46-8.

Shell turreted, narrowly perforate, shining, white, with longitudinal undulating or zigzag pinkish or purplish lines, sometimes with spiral bands at the periphery and around the umbilicus. Whorls more or less carinated at the periphery, the carina exerted above the sutures on the spire. Suture margined. Columella not truncate. Alt. 8-12, diam. 5-7 mm.

Hab.—Stuart Island (Stewart Island?), New Zealand.

I have not seen any New Zealand specimens.

Subgen. THALOTIA, Gray, 1847.

Sect. THALOTIA, s.s.

26. CANTHARIDUS CONICUS (Gray).

Monodonta conica, Gray: King's Survey Australia, vol. ii (1827), p. 479.

(?) *Trochus pictus*, Wood: Index Test. Suppl., pl. v, fig. 28.

Thalotia picta (Wood): A. Adams, Proc. Zool. Soc., 1851, p. 172.

Monodonta turrita, Menke: Moll. Nov. Holl., p. 15.

Trochus Lehmanni, Kiener: Species, genre *Trochus*, pl. xlvi, fig. 2 (not of Menke).

Thalotia Woodsiana, Angas: Proc. Zool. Soc., 1872, p. 611, pl. xlii, figs. 4, 5.

Trochus Troschelii, Philippi: Conch. Cab., p. 131, pl. xxiii, fig. 2.

Cantharidus rufozona, A. Ad.: Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 362 (not of A. Adams).

Thalotia conica (Gray): Hutton, Man. New Zealand Moll., p. 97.

Cantharidus conicus (Gray): Pilsbry, Man. Conch., ser. i, vol. xi, p. 141, pl. xlvi, fig. 73; pl. xlvi, figs. 67, 68 (*T. Woodsiana*).

Shell elevated, conical, imperforate, pinkish or greyish white with crimson apex and numerous close longitudinal dark reddish-brown stripes, often cut into tessellations. Whorls of spire with 5 or 6 granose liræ, 13-14 on the last whorl. Peristome thick, plicate within. Columella straight, denticulate, with a strong basal truncation. Alt. 20, diam. 13 mm.

Hab.—Rangitoto Channel, near Auckland; scarce (T. F. Cheeseman).

The species was omitted from the list of New Zealand mollusca by Captain Hutton in his revision (Proc. Linn. Soc. New South Wales, vol. ix, p. 357, footnote). From his description of *Cantharidus rufozona* there is no doubt that it is not that species, but *C. conicus* (Gray). Two specimens from Auckland in my collection agree perfectly with typical specimens from Tasmania. There are also specimens in the Auckland Museum, marked as coming from Auckland.

It is evident that Adams' short description of *C. rufozona* does not refer to *C. conicus*, since he described that species under the name of *Thalotia picta* (Wood).

Subfam. GIBBULINÆ.

Genus GIBBULA, Risso, 1826.

Sect. CALLIOTROCHUS, Fischer.

27. GIBBULA TASMANICA, Petterd.

Gibbula Tasmanica, Petterd: Quart. Journ. Conch., vol. ii (1879), p. 103; Pilsbry, Man. Conch., ser. i, vol. xi, p. 236, pl. xl, fig. 20.

Shell small, perforate, conical, lustreless, whitish tinged with yellow, unicoloured, or marked with a few angular, radiating maculations of brown. Sutures impressed. Whorls 6, convex, finely, spirally lirulate, last whorl bluntly subangular, convex beneath, impressed round the umbilicus. Aperture oblique, angular above, broadly rounded below. Umbilicus narrow, funnel-shaped. Alt. 6, diam. 5.5 mm. My specimen with six whorls has alt. 8, diam. 7 mm.

Hab.—Lyall Bay.

Specimens collected by Mr. A. Hamilton of Dunedin correspond with the diagnosis and figure given by Pilsbry. I have not seen any Tasmanian specimens.

Sect. CANTHARIDELLA, Pilsbry.

28. GIBBULA FULMINATA (Hutton).

Chrysostoma fulminata, Hutton: Cat. Mar. Moll., 1873, p. 36.
Margarita fulminata, Hutton: Man. New Zealand Moll., p. 103; Proc. Linn. Soc. New South Wales, vol. ix, p. 364.
Gibbula fulminata, Pilsbry: Man. Conch., ser. i, vol. xi, p. 216, pl. xliii, figs. 14-16.

Shell narrowly perforate, globose-conoidal, shining, smooth, except for a few striæ round the umbilicus. Colour pink or pinkish-brown, generally with a series of white blotches alternating with darker ones below the sutures, a girdle of white blotches along the periphery and often around the umbilicus; intervening spaces with zigzag streaks. Whorls 5, convex. Aperture rounded-quadrate, lip white-margined, columella arcuate; umbilicus white. Alt. 7.5, diam. 8 mm.

Hab.—Auckland to Wellington; Chatham Is.

29. GIBBULA ROSEA (Hutton).

Chrysostoma rosea, Hutton: Cat. Mar. Moll., 1873, p. 36.
Margarita rosea, Hutton: Man. New Zealand Moll., p. 103; Proc. Linn. Soc. New South Wales, vol. ix, p. 364.
Gibbula rosea (Hutton): Pilsbry, Man. Conch., ser. i, vol. xi, p. 216.

Shell small, globose-conoidal, narrowly umbilicated, pink with a few longitudinal white streaks or narrow spiral bands and purplish spots

on the last whorl; spirally, closely striate. Whorls $3\frac{1}{2}$, convex, the last rounded at the periphery; protoconch white, smooth. Aperture circular, thickly margined with a white callosity all round, columella subtruncate below. Umbilicus narrow but open, its margin slightly crenulate by radial folds. Base convex. Alt. 3.5, diam. 6 mm. Specimens from Bounty Island measure 2.25×3 mm.

Hab.—Stewart I.; Bounty I.; Campbell I.

30. GIBBULA ANTIPODA (Hombron & Jacquinot).

Margarita antipoda, Hombr. & Jacq.: Voy. Pole Sud, Zool. vol. v (1854), p. 58, pl. xiv, figs. 26-8; Hutton, Man. New Zealand Moll., p. 103; Proc. Linn. Soc. New South Wales, vol. ix, p. 363.

Gibbula antipoda, Pilsbry: Man. Conch., ser. 1, vol. xi, p. 217, pl. xxxiii, figs. 102-4.

Shell small, perforate, depressed-conoidal, yellowish-green, iridescent, with 4-5 green or blackish spiral bands above, and sometimes below, the periphery. Whorls 3, the last very large, faintly spirally striated and with rather strong growth-lines, periphery rounded. Aperture large, round, margined by a white callus. Umbilicus almost closed up by the columellar reflection. Alt. 8, diam. 8 mm. A specimen from Antipodes Island measures 4.5×6 mm.

Hab.—Auckland Is.; Antipodes I.

31. GIBBULA NITIDA, Adams & Angas.

Gibbula nitida, Ad. & Ang.: Proc. Zool. Soc., 1864, p. 36; Hutton, Man. New Zealand Moll., p. 102; Proc. Linn. Soc. New South Wales, vol. ix, p. 364; Pilsbry, Man. Conch., ser. 1, vol. xi, p. 217, pl. xxxvii, figs. 25-7.

Chrysostoma inconspicua, Hutton: Cat. Mar. Moll., 1873, p. 36.

Margarita (?) inconspicua, Hutton: Man. New Zealand Moll., p. 102; Trans. New Zealand Inst., vol. xv, p. 124, pl. xiv, fig. N (radula).

Shell small, conical, narrowly umbilicate, olive-yellow or bluish-grey, marked with numerous, continuous, thread-like, white, spiral lines, generally broken up in tessellations; spire elevated, with convex outlines; last whorl obtusely angular around the periphery; base with 7-8 concentric liræ. Aperture rounded-quadrate, outer lip finely crenulated, within brilliantly iridescent; columella arcuate. Umbilicus funnel-shaped, yellowish within. Alt. 6.5, diam. 5.5 mm.; alt. 7, diam. 6.5 mm.

Specimens from Dunedin are bluish-black, shining more or less distinctly, spirally striate, umbilicus half covered by the columellar expansion. Alt. 8, diam. 7 mm.

Hab.—East and west coasts of both the North and South Islands; on stones near low-water mark.

32. *GIBBULA SCAMNATA* (Fischer).

Trochus (*Gibbula*) *scamnatus*, Fischer: Journ. de Conch., 1878, p. 66; Coq. Viv., p. 394, pl. cxvii, fig. 4.

Gibbula scamnata (Fisch.): Pilsbry, Man. Conch., ser. I, vol. xi, p. 220, pl. xxx, fig. 6.

Shell small, subperforate, conoidal, cinereo-olivaceous, with spiral blackish bands; whorls 6, somewhat convex with 5-6 elevated line on the penultimate whorl; last whorl subangulate, base convex with 7-8 concentric liræ, the interstices narrow. Aperture subrhomboidal, sulcate within; columella arcuate, a little reflexed and almost covering the umbilicus. Alt. 7, diam. 7.5 mm. (Fischer).

Hab.—Brighton, Otago; Oceanica (Fischer).

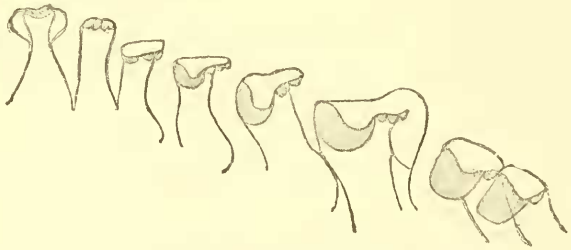
Specimens collected by Mr. A. Hamilton undoubtedly belong to this species, for which no definite locality was given by Fischer.

The species closely resembles *Cantharidus rufozona*, A. Ad., from which, however, it may at once be distinguished by its partly open umbilicus, its arcuate columella without any indication of a tooth, its larger size, and darker colour.

This is perhaps the undescribed form of *Cantharidus* mentioned by Pilsbry under *C. tenebrosus* (t.e., p. 124).

33. *GIBBULA SUTERI* (E. A. Smith).

Photinula Suteri, E. A. Smith: Proc. Malac. Soc., Vol. i (1894), p. 58, pl. vii, Fig. 3.



Portion of radula of *Gibbula Suteri* (E. A. Smith).

Shell small, turbinate, imperforate, uniformly black or grey, cinereous, pink, etc., longitudinally variegated and tessellated with white. Whorls 5, convex, rapidly increasing, faintly spirally striate. Last whorl angled at the periphery. Aperture rounded, outer lip sharp, columella arcuate, its expansion completely covering the umbilicus, leaving only a slight pit; umbilical tract white, impressed. Base slightly convex. Alt. 4, diam. 4 mm.

Hab.—Lyttelton Harbour (H. S.); Lyall Bay (A. Hamilton).

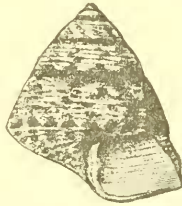
On examining the animal I found that a jaw is present and the radula is decidedly that of the genus *Gibbula*. A figure of the teeth

is here given. According to Fischer, *Photinula* has no jaw. The character of the radula and presence of a jaw induce me to class this species under *Gibbula*.

Type in the British Museum.

34. GIBBULA MICANS, n.sp.

Shell minute, subperforate or imperforate, conical, iridescent, shining, light-yellow with radiate oblique broad streaks of dark-brown, the intervals with a few dots of light-brown; base tessellated with yellow and brown. Whorls 6, the first two minute, smooth, reddish-brown, the others finely spirally striate, about 15 striæ on the



Gibbula micans, n.sp.

penultimate whorl; spire conic, scarcely convex, last whorl carinate. Aperture subquadrangular, oblique, outer and basal lip sharp, margined with a white band; interior lirate, iridescent; columella subvertical, slightly arched, subdentate in the middle. Umbilicus partly or completely covered by the columellar expansion. Base convex, umbilical tract slightly impressed, white. Alt. 4, diam. 3-5 mm.

Hab.—Resolution I. (A. Hamilton).

Type in my collection.

Genus MONILEA, Swainson, 1840.

35. MONILEA EGENA (Gould).

Solarium egenum, Gould: Proc. Bost. Soc. Nat. Hist., vol. iii (1849), p. 84; U.S. Explor. Exped., Moll. p. 196, fig. 226.

Monilea Zealandica, Hutton: Cat. Mar. Moll., 1873, p. 40.

Margarita Zealandica (Hutton): Sowerby, Conch. Icon., fig. 17.

Torinia egena (Gould): Marshall in Tryon's Man. Conch., ser. i, vol. ix, p. 22, pl. vi, figs. 22, 23.

Monilea egena (Gould): Hutton, Man. New Zealand Moll., p. 102; Proc. Linn. Soc. New South Wales, vol. ix, p. 365; Pilsbry, Man. Conch., ser. i, vol. xi, p. 253, pl. xxxvii, fig. 13.

Shell small, low, ovate-conic, umbilicated, ashy-white, pearly beneath. Whorls 6, each with four sharply compressed spiral ribs,

the two uppermost beaded. Umbilicus one-third of base, tunnel-shaped, penetrating to the apex, its sides excavated on each whorl, the verge of which is crenulated. Aperture nearly circular. Alt. 5.5, diam. 7 mm.

Hab.—Bay of Islands; near Auckland, in sandy places, below low-water mark; not common (T. F. Cheeseman).

Genus CALLIOSTOMA, Swainson, 1840.

36. CALLIOSTOMA SPECTABILE (A. Adams).

Ziziphinus spectabilis, A. Adams: Proc. Zool. Soc., 1854, p. 37, pl. xxvii, fig. 7; Hutton, Man. New Zealand Moll., p. 98; Proc. Linn. Soc. New South Wales, vol. ix, p. 360.

Calliostoma spectabilis, Pilsbry: Man. Conch., ser. 1, vol. xi, p. 332, pl. xvi, fig. 12.

Shell large, imperforate, conical, flesh-coloured or yellowish, dotted with pink on the spiral ribs, which are coarsely granose, about 7 on the penultimate whorl, about 8 on the base. Whorls 6, nearly flat, the last obtusely angled at the periphery; base rather flattened. Aperture rounded-quadrangular. Columella pearly, arcuate. Umbilical region without any callus. Alt 35, diam. 37 mm.

Hab.—Auckland; Auckland Is. (*vide* Von Martens); Chatham Is. (*vide* Pilsbry). A rare shell.

37. CALLIOSTOMA TIGRIS (Martyn).

Trochus tigris, Martyn: Univ. Conch., vol. ii (1784), pl. lxxv; Gmelin, Syst. Nat., 13th ed., p. 3585, No. 128.

Granatum, Chemnitz: Conch. Cab., vol. v, p. 100, figs. 1654, 1655.

Ziziphinus granatum (Chemn.): Hutton, Man. New Zealand Moll., p. 98; Proc. Linn. Soc. New South Wales, vol. ix, p. 360.

Calliostoma tigris, Pilsbry: Man. Conch., ser. 1, vol. xi, p. 333, pl. xli, fig. 30.

Shell large, conical, imperforate, light-yellowish, longitudinally painted with numerous irregular reddish-chestnut stripes. Delicate finely beaded spiral liræ, 16–20 on the penultimate whorl, 18–25 on the upper surface of the body-whorl. Spire elevated, concave above. Whorls 10–12, the last convex, rounded at the periphery. Aperture rhomboidal, columella arcuate, a small callus on the umbilical region. Alt. 59, diam. 58 mm.; alt. 45, diam. 45 mm.

Hab.—Auckland to Cook Strait; Chatham I.

38. CALLIOSTOMA PUNCTULATUM (Martyn).

Trochus punctulatus, Martyn: Univ. Conch., pl. xxxvi (1784).

Trochus diaphanus, Gmelin: Syst. Nat., 13th ed., p. 3580.

Turbo grandineus, Valenc.: Voy. "Venus," atlas Moll., pl. iv, fig. 4.

Ziziphinus punctulatus, Hutton: Man. New Zealand Moll., p. 98;
Proc. Linn. Soc. New South Wales, vol. ix, p. 360;
Trans. New Zealand Inst., vol. xiv, p. 165, pl. vii, fig. H
(radula).

Calliostoma punctulatum, Martyn: Pilsbry, Man. Conch., ser. 1, vol. xi,
p. 334; vol. x, pl. lxx, fig. 75.

Shell conoidal, imperforate, light fawn-colour, with narrow, conspicuously beaded, spiral ridges, 8-12 on the penultimate whorl. Sutures impressed. Whorls 8-9, the last rounded at the periphery. Columella arcuate. Umbilical region without any callus. Alt. 36, diam. 36 mm.

Hab.—Cook Strait to Stewart I.

39. CALLIOSTOMA PELLUCIDUM (Valenciennes).

Trochus pellucidus, Valenc.: Voy. "Venus," Moll. (1846), pl. iv, fig. 2.
Ziziphinus granatus (Chemn.): Reeve, Conch. Icon., fig. 2 (not
Trochus granatum, Chemn. = *C. tigris*, Mart.).

Calliostoma pellucidum, Valenc.: Pilsbry, Man. Conch., ser. 1, vol. xi,
p. 334; vol. x, pl. xli, fig. 36.

Shell conical, imperforate, yellowish with a few brown obliquely longitudinal streaks. Close and numerous beaded spiral liræ dotted minutely with brown and white, 8-10 on the penultimate whorl; they are closer and smaller just below the periphery. Sutures slightly impressed. Last whorl subangular at the periphery. Aperture rhomboidal, columella arcuate, with a slight tubercle at the base. Umbilical region with a slight callus. Alt. 30, diam. 30 mm.

Similar to *C. tigris*, but differently coloured, more carinated, with fewer series of granules.

Hab.—Whangarei, Auckland; Cook Strait.

40. CALLIOSTOMA SELECTUM (Chemnitz).

Trochus selectus, Chemnitz: Conch. Cab., vol. xi (1795), p. 168,
pl. cxcvi, figs. 1896, 1897.

Trochus Cunninghami, Gray: Griffith's "Cuvier's Anim. Kingd.,"
vol. xii (1834), pl. i, fig. 7.

Ziziphinus selectus (Chemn.) and *Cunninghami* (Gray): Hutton, Man.
New Zealand Moll., p. 98.

Ziziphinus decarinatus, Hutton: Proc. Linn. Soc. New South Wales,
vol. ix, p. 359 (not *decarinatus*, Perry).

Trochus torquatus, Anton: Philippi, Conch. Cab., p. 261, pl. xxxviii,
fig. 13.

Calliostoma selectum, Chemn.: Pilsbry, Man. Conch., ser. 1, vol. xi,
p. 335, pl. lxx, figs. 73, 74, 78.

Shell large, imperforate, pale fawn-colour, elongated brown dots on the spiral riblets, which are closely granulose, 10-11 on the penultimate whorl. Spire conical, concave on the upper part. Whorls 8-9,

flat, the last slightly convex above, obtusely angular at the periphery, somewhat convex beneath. Aperture subrhomboidal, columella arcuate. Umbilical region with a large callosity. Alt. 50, diam. 57 mm.; alt. 37, diam. 47 mm.

Hab.—Auckland to Cook Strait.

* * * *Calliostoma Lessonæanum*, Tapp.-Can. : Pilsbry, Man. Conch., ser. 1, vol. xi, p. 402, is *not* a New Zealand shell.

Genus EUCHELUS, Philippi, 1847.

Sect. EUCHELUS, s.s.

(= *Huttonia*, T. W. Kirk : Trans. New Zealand Inst., vol. xiv, p. 282.)

41. EUCHELUS BELLUS, Hutton.

Euchelus bellus, Hutton : Cat. Mar. Moll., 1873, p. 37; Man. New Zealand Moll., p. 95; Proc. Linn. Soc. New South Wales, vol. ix, p. 357; Pilsbry, Man. Conch., ser. 1, vol. xi, p. 435, pl. lxvii, fig. 80.

Huttonia bella, Hutton : Trans. New Zealand Inst., vol. xv, p. 123, pl. xiv, fig. I (operculum and radula).

Shell small, globose-conic, pinkish-white varied with darker markings, imperforate, with granose spiral liræ, 7-8 on the penultimate whorl, 10 on the body-whorl. Whorls 5, convex, the last globose. Aperture rounded, columella concave, terminating in a tooth, below it a narrow notch, and another tooth on the basal lip. Alt. 6.5, diam. 6.5 mm.

Hab.—Chatham I.

Var. *iricolor*, T. W. Kirk.

Huttonia iricolor, T. W. Kirk : Trans. New Zealand Inst., vol. xiv (1882), p. 282; Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 358.

Euchelus bellus var. *iricolor*, Pilsbry : Man. Conch., ser. 1, vol. xi, p. 436.

Granules coarser; dirty chocolate, interior bluish-green.

Hab.—Auckland to Waikanae.

42. EUCHELUS HAMILTONI (T. W. Kirk).

Huttonia Hamiltoni, T. W. Kirk : Trans. New Zealand Inst., vol. xiv (1882), p. 283.

Euchelus Hamiltoni, T. W. Kirk : Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 358; Pilsbry, Man. Conch., ser. 1, vol. xi, p. 436.

Shell perforate, spiral granular ribs very fine, white or pinkish-white with darker spots in diagonal lines. Inside white.

Hab.—Wellington.

Pilsbry thinks this may prove to be the same as *E. Tasmanicus*, Ten.-Woods. I have seen neither species.

Subfam. UMBONINÆ.

Genus ETHALIA, Adams, 1853.

43. ETHALIA ZELANDICA (Hombr. & Jacq.).

Rotella Zelandica, Hombr. & Jacq.: Voy. Pole Sud, Zool. vol. v (1854), p. 53, pl. xiv, figs. 5, 6; Hutton, Man. New Zealand Moll., p. 92.

Rotella Neozelandica, Hombr. & Jacq.: Hutton, Proc. Linn. Soc. New South Wales, vol. ix, p. 357.

Globulus anguliferus, Philippi: Conch. Cab. (1853 ?), p. 51, pl. viii, fig. 3.

Umbonium chalconotum, A. Adams: Proc. Zool. Soc., 1853, p. 188.

Ethalia Zelandica, Hombr. & Jacq.: Pilsbry, Man. Conch., ser. 1, vol. xi, p. 459, pl. lviii, figs. 9, 32, 33; pl. lix, fig. 66.

Shell depressed, imperforate, solid, yellowish or pinkish, radiately streaked with chestnut-brown or red above, base with a reddish or purple zone around the central callus, the outer part white. Surface smooth, shining; spire low, conoidal; sutures linear. Last whorl concave above. Umbilical area covered by a thin, radiately rugose, purple and white callus. Aperture rounded-quadrate. Columella short, very thick, inserted in a pad of white callus on the body over the axis. Alt. 11, diam. 19 mm.

Hab.—Auckland to Dunedin.